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Expression of programmed cell death 1 ligands in histiocytic and dendritic cell neoplasms

PD-1 (programmed cell death protein 1) is expressed on activated T cells. The ligands (PD-L1 or PD-L2) on tumor cells or antigen presenting cells bind to PD-1 and results in reduced T cell activation and inhibited immune responses. Antibodies targeting PD-1 or PD-L1 elicit antitumor immunity in a subset of patients with solid tumors including melanoma, renal cell carcinoma, non-small cell lung cancer and hematopoietic tumors such as classical Hodgkin lymphoma, and clinical response correlates with PD-1 ligand expression by malignant or immune cells within the tumor microenvironment. Histiocytic and dendritic cell sarcomas are malignant neoplasms with high morbidity and mortality; they are rare and can be difficult to diagnose. We examined the expression of PD-1 ligands on histiocytic and dendritic cell sarcomas. Seven of 14 histiocytic sarcomas (HS) (50%), 2 of 5 interdigitating dendritic cell sarcomas (IDS) (40%), 10 of 20 follicular dendritic cell sarcomas (FDS) (50%), and none of 9 blastic plasmacytoid dendritic cell neoplasms (BPDCN) were positive for PD-L1. Eleven of 20 (55%) follicular dendritic cell sarcomas were also positive for PD-L2. Our results suggest that PD-L1 and PD-L2 IHC may prove useful in establishing or confirming the diagnosis of histiocytic and dendritic cell sarcomas. Given that patients with histiocytic and dendritic cell sarcomas are generally resistant to conventional chemotherapy, checkpoint blockade may prove a more effective alternative. In summary, PD-L1 and PD-L2 are useful new markers for identifying select histiocyte and dendritic cell neoplasms and reveal novel patient populations as rational candidates for immunotherapy.

Biography

Jie Xu has received her MD from Hubei Medical University and her PhD from the University of Alabama at Birmingham. She is currently an assistant professor in the Department of Hematopathology at the University of Texas MD Anderson Cancer Center. She is board certified by the American Board of Pathology in Anatomic Pathology, Clinical Pathology, and Hematology. She has been actively participating in multiple research projects in tumors of hematopoietic and lymphoid tissue, and cancer, which has led to 48 research papers, 39 presentations at the national and international conferences, and multiple awards. Her major research interests include diagnostic and prognostic factors in lymphoma and leukemia and the potential therapeutic targets for hematopoietic neoplasms.

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